THE EMBODIMENTS OF THE INVENTION IN WHICH AN EXCLUSIVE PROPERTY OF PRIVILEGE IS CLAIMED ARE DEFINED AS FOLLOWS:

1. In an imaging array comprising a plurality of pixels arranged in rows and columns, each of said pixels being bounded by at least one data line and at least two control lines, the improvement wherein each of said pixels comprises at least two pixel electrodes and at least two switching means, a first one of said pixel electrodes being connected to said at least one data line via a first one of said switching means, said first one of said switching means having a control input thereof connected to a first one of said control lines, a second one of said pixel electrodes being connected to said first one of said pixel electrodes via a second one of said switching means, said second one of said switching means having a control input thereof connected to a second one of said control lines.

2. The improvement of claim 1, wherein each of said switching means further comprises a thin-film-transistor (TFT).

3. The improvement of claim 2, wherein a source terminal of said first switching means is connected to said at least one data line, a gate terminal of said first switching means is connected to said first one of said control lines, and a drain terminal of said first switching means is connected to said first one of said pixel electrodes.

4. The improvement of claim 2, wherein a source terminal of said second switching means is connected to said first one of said pixel electrodes, a gate terminal of said second switching means is connected to said second one of said control lines, and a drain terminal of said second switching means is connected to said second

one of said pixel electrodes.

5. A method of operating the imaging array of claim 1, comprising the steps of:

a) scanning successive ones of said control lines such that for each of said pixels charge carried by said first one of said pixel electrodes is transferred to said at least one data line in response to scanning said first one of said at least two control lines, and a portion of charge carried by said second one of said pixel electrodes is transferred to said first one of said pixel electrodes in response to scanning said second one of said control lines;

b) scanning successive ones of said control lines a second time such that said portion of charge transferred from said second one of said pixel electrodes to said first one of said pixel electrodes is transferred to said at least one data line; and

c) multiplying said portion of charge transferred to said at least one data line by a correction factor proportional to capacitance ratio between said first and second pixel electrodes, whereby each of said pixels functions as a pixel pair defined by said first and second pixel electrodes.

6. The method of claim 5, further comprising the steps of repeatedly further scanning successive ones of said control lines for clearing charge from said second one of said pixel electrodes.

7. The method of claim 5, further comprising the step of simultaneously scanning all of said control lines for clearing charge from said second one of said pixel electrodes.

8. The improvement of claim 1, wherein said second one of said pixel electrodes is smaller than said first one

of said pixel electrodes.

9. A method of operating the imaging array of claim 8, comprising the steps of:

a) scanning successive ones of said control lines such that for each pixel charge carried by said first one of said pixel electrodes is transferred to said at least one data line in response to scanning said first one of said at least two control lines, and a portion of charge carried by said second one of said pixel electrodes is transferred to said first one of said pixel electrodes in response to scanning said second one of said control lines;

b) for each of said pixels detecting whether said charge transferred to said at least one data line is greater than a predetermined saturation amount;

c) scanning successive ones of said control lines a further time such that said portion of charge transferred from said second one of said pixel electrodes to said first one of said pixel electrodes is transferred to said at least one data line; and

d) for each of said pixels in which said charge transferred to said at least one data line is less than said predetermined saturation amount selecting said charge for output detection, and for each of said pixels in which said charge transferred to said at least one data line is greater than said predetermined saturation amount multiplying said portion of charge transferred to said at least one data line from said second one of said pixel electrodes by a correction factor so as to yield an equivalent charge as stored on said first one of said pixel electrodes wherein said first and second ones of said pixel electrodes have identical charge per unit area, and selecting said equivalent charge for output detection, thereby extending the dynamic range of said pixels.

10. In an imaging array comprising a plurality of pixels arranged in rows and columns, each of said pixels being bounded by at least one data line and at least two control lines, the improvement wherein each of said pixels comprises at least two pixel electrodes and at least three switching means, a first one of said pixel electrodes being connected to said at least one data line via a first one of said switching means, said first one of said switching means having a control input thereof connected to a first one of said control lines, a second one of said pixel electrodes being connected to said at least one data line via second and third ones of said switching means, said second one of said switching means having a control input thereof connected to said first one of said control lines and said third one of said switching means having a control input thereof connected to a second one of said control lines.

11. The improvement of claim 10, wherein each of said switching means further comprises a thin-film-transistor (TFT).

12. The improvement of claim 11, wherein a source terminal of said first switching means is connected to said at least one data line, a gate terminal of said first switching means is connected to said first one of said control lines, and a drain terminal of said first switching means is connected to said first one of said pixel electrodes.

13. The improvement of claim 11, wherein a source terminal of said second switching means is connected to said at least one data line, a gate terminal of said second switching means is connected to said first one of said control lines, a drain terminal of said second switching means is connected to a source terminal of said third switching means, a gate terminal of said third

switching means is connected to the second one of said control lines, and a drain terminal of said third switching means is connected to said second one of said pixel electrodes.

14. A method of operating the imaging array of claim 10, comprising the steps of:

a) scanning successive ones of said control lines such that for each of said pixels charge carried by said first one of said pixel electrodes is transferred to said at least one data line in response to scanning said first one of said pair of control lines; and

b) scanning successive adjacent pairs of said control lines a second time such that for each of said pixels charge carried by said second one of said pixel electrodes is transferred to said at least one data line in response to scanning said adjacent pairs of control lines, whereby each of said pixels functions as a pixel pair defined by said first and second pixel electrodes.

15. The improvement of claim 10, wherein said second one of said pixel electrodes is smaller than said first one of said pixel electrodes.

16. A method of operating the imaging array of claim 15, comprising the steps of:

a) scanning successive ones of said control lines such that for each of said pixels charge carried by said first one of said pixel electrodes is transferred to said at least one data line in response to scanning said first one of said control lines;

b) for each of said pixels detecting whether said charge transferred to said at least one data line is greater than a predetermined saturation amount;

c) scanning successive adjacent pairs of said control lines a second time such that charge carried by said second one of said pixel electrodes is transferred

to said at least one data line; and

d) for each of said pixels in which said charge transferred by said first one of said pixel electrodes to said at least one data line is less than said predetermined saturation amount selecting said charge for output detection, and for each of said pixels in which said charge transferred by said first one of said pixel electrodes to said at least one data line is greater than said predetermined saturation amount multiplying said charge transferred by said second one of said pixel electrodes to said at least one data line by a correction factor proportional to area ratio between said first and second pixel electrodes and selecting said charge multiplied by said correction factor for output detection, thereby extending the dynamic range of each of said pixels.

17. In an imaging array comprising a plurality of pixels arranged in rows and columns, each of said pixels being bounded by a data line and a pair of control lines, the improvement wherein each of said pixels comprises at least three pixel electrodes and at least four switching means, a first one of said pixel electrodes being connected to said data line via a first one of said switching means, said first one of said switching means having a control input thereof connected to a first one of said control lines, a second one of said pixel electrodes being connected to said first one of said pixel electrodes via a second one of said switching means, said second one of said switching means having a control input thereof connected to the other one of said control lines, a third one of said pixel electrodes being connected to said data line via third and fourth ones of said switching means, said third one of said switching means having a control input thereof connected to said first one of said control lines and said fourth one of said switching means having a control input thereof

connected to the other one of said control lines.

18. The improvement of claim 17, wherein each of said switching means further comprises a thin-film-transistor (TFT).

19. The improvement of claim 18, wherein a source terminal of said first switching means is connected to said data line, a gate terminal of said first switching means is connected to said first one of said control lines, and a drain terminal of said first switching means is connected to said first one of said pixel electrodes.

20. The improvement of claim 18, wherein a source terminal of said second switching means is connected to said first one of said pixel electrodes, a gate terminal of said second switching means is connected to said other one of said control lines, and a drain terminal of said second switching means is connected to said second one of said pixel electrodes.

21. The improvement of claim 18, wherein a source terminal of said third switching means is connected to said data line, a gate terminal of said third switching means is connected to said first one of said control lines, a drain terminal of said third switching means is connected to a source terminal of said fourth switching means, a gate terminal of said fourth switching means is connected to the other one of said control lines, and a drain terminal of said fourth switching means is connected to said third one of said pixel electrodes.

22. A method of operating the imaging array of claim 17, comprising the steps of:

a) scanning successive ones of said control lines such that for each of said pixels charge carried by said first one of said pixel electrodes is transferred to said

data line in response to scanning said first one of said pair of control lines, and a portion of charge carried by said second one of said pixel electrodes is transferred to said first one of said pixel electrodes in response to scanning the other one of said control lines;

b) scanning successive ones of said control lines a second time such that said portion of charge transferred from said second one of said pixel electrodes to said first one of said pixel electrodes is transferred to said data line;

c) multiplying said portion of charge transferred to said data line by a correction factor proportional to capacitance ratio between said first and second pixel electrodes;

d) scanning successive adjacent pairs of said control lines a further time such that for each of said pixels charge carried by said third one of said pixel electrodes is transferred to said data line in response to scanning said adjacent pairs of control lines, whereby each of said pixels functions as two pixel pairs, a first one of said pixel pairs being defined by said first and second pixel electrodes and a second one of said pixel pairs being defined by said first and third pixel electrodes; and

e) subtracting said portion of charge transferred to said data line from said charge transferred to said data line from said third one of said pixel electrodes.

23. The improvement of claim 2, 11 or 18, wherein each said thin-film-transistor (TFT) is a single gate device.

24. The improvement of claim 2, 11 or 18, wherein each said thin-film-transistor (TFT) is a dual gate device.

25. The improvement of claim 10, wherein said second and third switching means are integrated as a dual gate device.

26. The improvement of claim 17, wherein said third and fourth switching means are integrated as a dual gate device.

27. A method of operating the imaging array of claim 1, comprising the steps of:

a) scanning successive ones of said control lines such that for each of said pixels charge carried by said first one of said pixel electrodes is transferred to said at least one data line in response to scanning said first one of said at least two control lines, and charge carried by said second one of said pixel electrodes is redistributed to both said first one of said pixel electrodes and said second one of said pixel electrodes in response to scanning said second one of said control lines; and

b) scanning successive adjacent pairs of said control lines a second time such that all remaining charge on said first and second ones of said pixel electrodes is transferred to said at least one data line.

28. In an imaging array comprising a plurality of pixels arranged in rows and columns, each of said pixels being bounded by a data line and a pair of control lines, the improvement wherein each of said pixels comprises at least four pixel electrodes and at least four switching means, a first one of said pixel electrodes being connected to said data line via a first one of said switching means, said first one of said switching means having a control input thereof connected to a first one of said control lines, a second one of said pixel electrodes being connected to said first one of said pixel electrodes via a second one of said switching means, said second one of said switching means having a control input thereof connected to the other one of said control lines, a third one of said pixel electrodes being connected to said data line via a third one of said

switching means, said third one of said switching means having a first control input thereof connected to said first one of said control lines and a second control input thereof connected to said other one of said control lines, and a fourth one of said pixel electrodes being connected to said third one of said pixel electrodes via a fourth one of said switching means, said fourth one of said switching means having a control input thereof connected to the other one of said control lines.

29. The improvement of claim 28, wherein each of said switching means further comprises a thin-film-transistor (TFT).

30. The improvement of claim 29, wherein a source terminal of said first switching means is connected to said data line, a gate terminal of said first switching means is connected to said first one of said control lines, and a drain terminal of said first switching means is connected to said first one of said pixel electrodes.

31. The improvement of claim 29, wherein a source terminal of said second switching means is connected to said first one of said pixel electrodes, a gate terminal of said second switching means is connected to said other one of said control lines, and a drain terminal of said second switching means is connected to said second one of said pixel electrodes.

32. The improvement of claim 29, wherein a source terminal of said third switching means is connected to said data line, a first gate terminal of said third switching means is connected to said first one of said control lines, a second gate terminal of said third switching means is connected to said other one of said control lines, and a drain terminal of said third switching means is connected to said third one of said

pixel electrodes.

33. The improvement of claim 29, wherein a source terminal of said fourth switching means is connected to said third one of said pixel electrodes, a gate terminal of fourth switching means is connected to said other one of said control lines, and a drain terminal of said fourth switching means is connected to said fourth one of said pixel electrodes.

34. A method of operating the imaging array of claim 28, comprising the steps of:

a) scanning successive ones of said control lines by first applying a medium level voltage to the control input of each said first one of said switching means such that charge carried by said first one of said pixel electrodes is transferred to said data line for each addressed pixel and a portion of charge carried by said second and fourth ones of said pixel electrodes is transferred to said first and third ones of said pixel electrodes, respectively, for each pixel adjacent to said addressed pixel, and thereafter applying a high level voltage to said control input of said first one of said switching means and said first control input of said third one of said switching means such that charge carried by said third one of said pixel electrodes is transferred to said data line for each addressed pixel;

b) scanning successive ones of said control lines a second time such that said portion of charge transferred from said second and fourth ones of said pixel electrodes to said first and third ones of said pixel electrodes is transferred to said at least one data line.